

REMARKS/ARGUMENTS

I. Status of Claims

Claims 1-10 are pending with claims 1, 5 and 8 being independent.

II. Rejections under 35 U.S.C. §103 (a)

Claims 1 – 10 are rejected under 35 U.S. C. §103 (a) as being unpatentable over U.S. Patent No. 7,106,690 to Song (hereinafter Song) in view of U.S. Publication No. 2002/016936 to Hepler (hereinafter Hepler). Applicant respectfully traverses this rejection.

Before discussing the difference between the claimed subject matter and the cited references, it is believed to be beneficial to give a brief overview of the claimed subject matter. In the proposed third generation W-CDMA mobile communication systems, asynchronous operation is performed between base transceiver stations (also referred to as “cells”). To classify the cells, different scrambling codes are assigned to each individual cell. In order for a mobile station to efficiently do a cell search, 512 scrambling codes are divided into 64 code groups and then 8 scrambling codes are assigned to each code group. To facilitate transmitting scrambling codes, a first synchronization code is used for synchronizing a slot time of a slot of a frame, and second synchronization codes are used for defining group designation codes, each of which determines one of the 64 code groups. Specifically, each second synchronization code corresponds to a particular code group and a particular time slot of a frame. Collectively, the second synchronization codes transmitted within a frame map to a group designation code. A second synchronization code is generated based on a series of 255 Hadamard sequences, each of which is determined by position information derived from an inherent 5-bit code index corresponding to the code group and the time slot that the second synchronization code corresponds to.

The claimed subject matter relates to methods and apparatuses for generating a second synchronization code for use in a transmitter in a mobile communication system. Independent method claim 1 comprises the steps:

- (1) in response to any one slot, outputting a value, which is obtained by subtracting 1 from a code index included in the selected code group, as a binary bit row; and
- (2) selecting one bit row, which employs the binary bit row as an upper bit and employs a binary code “0000” as a lower bit, as position information which designates the Hadamard code.

In contrast, Song, the primary reference cited, is directed to a method for generating an optimal cell identification code (see abstract), which is not the same as a secondary synchronization code as recited in the preamble of claim 1, for the former is an identification code identifying a cell, whereas the later is a synchronization code corresponding to a particular time slot. Understandably, in Song, Hadamard codes are also used for generating an optimal cell identification code, for the optimal cell identification code is generated by either deleting or puncturing specific bits of Hadamard codes. However, with respect to Song's method, no value is outputted in response to a time slot, and no operation is made to derive position information designating the Hadamard code. Hence, Song's method does not disclose, teach, or suggest the claimed steps of: (1) in response to any one slot, outputting a value, which is obtained by subtracting 1 from a code index included in the selected code group, as a binary bit row; and (2) selecting one bit row, which employs the binary bit row as an upper bit and employs a binary code “0000” as a lower bit, as position information which designates the Hadamard code.

The Examiner points to col. 5, lines 21-36 and col. 8, lines 22-34 and Tables 6-7 as disclosing the first step as claimed. Applicant respectfully disagrees. Col. 5, lines 21-36 merely discloses how bits of the Hadamard codes are deleted or punctured in order to generate an optimal cell identification code. Similarly, col. 8, lines 22-34 merely shows the reason behind deleting or puncturing bits of the Hadamard codes with respect to no reduction of Hamming distance. Accordingly, Song does not disclose, teach, or suggest the two claimed steps recited in claim 1.

Admitting that Song does not disclose, teach, or suggest the claimed second step of selecting one bit row, which employs the binary bit row as an upper bit and employs a binary code “0000” as a lower bit, as position information which designates the Hadamard code, the Examiner cited the secondary reference Hepler as purportedly

disclosing this subject matter. Hepler, however, is directed to a system for generating pseudorandom codes using a register containing an identification of the code tree leg of the desired code and a counter which outputs a successive binary sequence. Specifically, pseudorandom codes are fundamentally different from a secondary synchronization code as recited, for the former is used for spreading data for transmission (see paragraph [0003] of Hepler), whereas the latter is a synchronization code that corresponds to a particular time slot.

In addition, paragraphs [0025], [0026] and [0028-0038] of Hepler, which the Examiner relied on as purportedly disclosing the claimed second step, merely show that the spreading factor selector 16 is used to control multiplexer 14 such that multiplexer 14 outputs only the desired bits of bit position counter 12, which are subsequently ANDed with desired bits of a selected branch of the code tree outputted from index selector 20. This step, however, is very different from selecting one bit row, which employs the binary bit row as an upper bit and employs a binary code “0000” as a lower bit, as position information which designates the Hadamard code, as recited in claim 1. To be more specific, in Hepler, the output from the final AND operation is merely the desired bits of a selected branch of a code tree, whereas, in the claimed second step, the resulting bit row is used as position information to designate a Hadamard code. Moreover, nowhere in the cited sections teaches the claimed operation of employing a selected binary bit row as an upper bit and employing a binary code “0000” as a lower it so as to select one bit row as position information designating a Hadamard code. Accordingly, Hepler does not cure the admitted deficiency of Song.

Consequently, Song and Hepler, neither singly, nor in combination, disclose, teach, or suggest the steps recited in claim 1. Accordingly, reconsideration and withdrawal of rejection of claim 1 is respectfully requested. Independent apparatus claim 5 contains subject matter similar to claim 1, and independent method claim 8 includes an additional step (3). Accordingly, reconsideration and withdrawal of their rejections is respectfully requested. Claims 2-4, 6-7 and 9-10 are also believed to allowable by virtue of their dependence from allowable claims 1, 5 and 8.

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Accordingly, reconsideration and withdrawal of their rejections is respectfully requested.

III. Substitute Declaration

A substitute declaration executed by the inventor is being transmitted herewith to replace the originally filed declaration. The Examiner's acknowledgement and entry of the substitute declaration is respectfully requested.

IV. Conclusion

In view of the above, it is believed that the application is in condition for allowance and notice to this effect is respectfully requested. Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the telephone number indicated below.

Respectfully Submitted,


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